

WHAT IS CLAIMED IS:

1. A rubber-reinforced styrene transparent resin composition comprising a styrene copolymer reinforced with a rubber polymer, wherein the monomer composition of an acetone soluble resin component contained in the resin composition comprises 5 to 70% by weight of aromatic vinyl monomer (a1), 30 to 95% by weight of unsaturated carboxylic acid alkyl ester monomer (a2), 0 to 50% by weight of vinyl cyanide monomer (a3), and 0 to 50% by weight of another monomer copolymerizable with these monomers, and the acid value of the acetone soluble resin component is 0.01 to 1 mgKOH/g.
2. A rubber-reinforced styrene transparent resin composition according to Claim 1, comprising 10 to 95 parts by weight of copolymer (A) obtained by copolymerizing a vinyl monomer mixture (a), and 90 to 5 parts by weight of graft copolymer (B) obtained by graft-polymerizing a vinyl monomer mixture (c) in the presence of a rubber polymer (b).
3. A rubber-reinforced styrene transparent resin composition according to Claim 2, wherein each of the vinyl monomer mixture (a) and the vinyl monomer mixture (c) has an acid value of less than 0.01 mgKOH.

4. A rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, wherein the total light transmittance is 50% or more.

5. A rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, wherein in the composition distribution of weight ratios ( $\phi_{ST}/\phi_{MMA}$ ) of the aromatic vinyl monomer (a1) and the unsaturated carboxylic acid alkyl ester monomer (a2), which constitute the acetone soluble resin component, 80% by weight or more of the acetone soluble resin component lies in the range of 0.75 to 1.2 times as large as the average weight ratio ( $\phi_{ST}/\phi_{MMA}$ ).

6. A rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, wherein the difference in refractive index between the rubber polymer and the acetone soluble resin component is 0.03 or less.

7. A rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, wherein each of the vinyl monomer mixtures (a) and (c) is a monomer mixture comprising 5 to 70% by weight of aromatic vinyl

monomer (a1), 30 to 95% by weight of unsaturated carboxylic acid alkyl ester monomer (a2), 0 to 50% by weight of vinyl cyanide monomer (a3), and 0 to 50% by weight of another monomer copolymerizable with these monomers, and containing substantially no unsaturated carboxylic acid monomer (except the unsaturated carboxylic acid alkyl ester monomer (a2)) (a5).

8. A rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, wherein each of the vinyl monomer mixtures (a) and (c) is a monomer mixture comprising 5 to 40% by weight of aromatic vinyl monomer (a1), 30 to 80% by weight of unsaturated carboxylic acid alkyl ester monomer (a2), 10 to 50% by weight of vinyl cyanide monomer (a3), and 0 to 40% by weight of another monomer copolymerizable with these monomers, and the ratio of a triple sequence of acrylonitrile monomer units present in the acetone soluble resin component of the resin composition is 10% by weight or less relative to the acetone soluble resin component.

9. A rubber-reinforced styrene transparent resin composition according to Claim 8, wherein the solubility parameter of the copolymer (A) is  $10.5 \text{ to } 12.5 \text{ (cal/ml)}^{1/2}$ .

*Sub A1*

10. A method of producing a rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3 and 9, the method comprising melt-blending 10 to 95 parts by weight of copolymer (A) obtained by copolymerizing a vinyl monomer mixture (a), and 90 to 5% by weight of graft copolymer (B) obtained by graft-polymerizing a vinyl monomer mixture (c) in the presence of a rubber polymer (b), wherein 0.1 to 5% by weight of emulsifier is contained in the graft copolymer (B).

*Sub 11*

11. A method of producing a rubber-reinforced styrene transparent resin composition according to Claim 10, wherein during melt blending, the moisture percentage of the graft copolymer (B) is 0.1% or more by weight and less than 5% by weight.

*Sub A2*

12. A method of producing a rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, 9 and 11, wherein the copolymer (A) is obtained by continuous bulk polymerization or continuous solution polymerization of the vinyl monomer mixture (a), and the graft copolymer (B) is added to the obtained copolymer (A) in a melt state and melt-blended therewith.

*Sub C1*

13. A method of producing a rubber-reinforced styrene

transparent resin composition according to Claim 12, further comprising a monomer removing step after the step of continuous bulk polymerization or continuous solution polymerization of the vinyl monomer mixture (a), wherein the graft copolymer (B) is added to the copolymer (A) in a melt state in the course of the monomer removing step or after the monomer removing step.

14. A method of producing a rubber-reinforced styrene transparent resin composition according to Claim 13, wherein in adding the graft copolymer (B), the amount of the residual monomer in the copolymer (A) is 10% by weight or less.

15. A method of producing a rubber-reinforced styrene transparent resin composition according to Claim 14, wherein assuming that the actual volume of a melt-blending portion of an apparatus, in which the copolymer (A) and the graft copolymer (B) are transferred while being melt-blended, is  $V$  ( $m^3$ ), the temperature is  $T$  ( $^{\circ}C$ ), and the moving velocity of the resin composition finally discharged is  $v$  ( $kg/h$ ), the following conditions ① and ② are satisfied:

$$4.60 \times 10^{-6} \leq V/v \leq 11.50 \times 10^{-6} \text{ (m}^3\text{·h/kg)} \dots \textcircled{1}$$

$$T \geq 230 \text{ (}^{\circ}C\text{)} \dots \textcircled{2}$$

*Sub A3*

16. A method of producing a rubber-reinforced styrene transparent resin composition according to any one of Claims 13 to 15, wherein the graft copolymer (B) added to the copolymer (A) is in a semi-melt or melt state.

*Sub C1*

17. A method of producing a rubber-reinforced styrene transparent resin composition according to Claim 16, wherein the temperature of the graft copolymer (B) supplied to the melt blending portion of the apparatus is 100 to 220° C.

*Sub A1*

18. A method of producing a rubber-reinforced styrene transparent resin composition according to any one of Claims 1 to 3, 9, 11, 13 to 15 and 17, wherein 0.1 to 5% by weight of water relative to the resin composition is added in the course of the step of melt-blending the copolymer (A) and the graft copolymer (B).

19. A rubber-reinforced styrene transparent resin composition comprising a resin composition obtained by mixing 90 to 5 parts by weight of graft copolymer (B), which is obtained by graft-polymerizing a vinyl monomer with a rubber polymer, with 10 to 95 parts by weight of copolymer (A) in a melt state in the step of continuous bulk polymerization or continuous solution polymerization of a vinyl monomer mixture (a), wherein in mixing the copolymer

(A) and the graft copolymer (B), 0.1 to 30% by weight of pelletized thermoplastic resin (C) relative to the graft copolymer (B) is previously added to the graft copolymer (B) and mixed therewith in a melt or semi-melt state, and then mixed with the copolymer (A).

*Claim 20*  
20. A rubber-reinforced styrene transparent resin composition according to Claim 19, wherein the pelletized thermoplastic resin (C) has an average particle diameter of 1 to 10 mm.

21. A method of producing a rubber-reinforced styrene transparent resin composition according to Claim 19 or 20, comprising continuously or intermittently taking out a part or the whole of the resin composition or the copolymer (A) obtained without adding the graft copolymer (B), and reusing the taken-out composition or copolymer (A) by adding as the pelletized thermoplastic resin (C) to the graft copolymer (B) and mixing therewith.

*Ad. wt?*